

What is claimed is:

1. An EDF scheduling method comprising:
checking the number of tasks to be scheduled;
5 allocating priorities to the tasks;
updating current time as the lowest priority; and
processing the tasks in a shortest-deadline-first order from the updated
lowest priority on a temporal axis.
- 10 2. The method of claim 1, wherein it is determined that the number of
tasks to be scheduled is less than the number of a priority level.
3. The method of claim 2, wherein the number of a priority level is 2^k .
- 15 4. The method of claim 2 or 3, wherein if the number of tasks is less
than that of the priority level, a priority of each task is determined as a value
obtained by dividing a value obtained by dividing a deadline d_i of a corresponding
task by a maximum deadline T_{\max} by a specific time unit q .
- 20 5. The method of claim 4, wherein the maximum deadline is a
relative deadline of a task having the longest period among the tasks.
6. The method of claim 4, wherein the specific time unit is a value
obtained by dividing the maximum deadline by the number of a priority level.

25

7. The method of claim 4, wherein the current time is indicated by a current time indicator.

8. The method of claim 7, wherein the current time indicator is a value obtained by dividing a value obtained by dividing current time of a system by the maximum deadline by the specific time unit.

9. The method of claim 2 or 3, wherein if the number of tasks is less than the number of a priority level, a priority of each task (P_i) is calculated by a following formula of $\left[\frac{d_i \bmod T_{\max}}{q} \right]$, in which the d_i denotes a deadline of a corresponding task, T_{\max} denotes a maximum deadline, and the q denotes a specific time unit.

10. The method of claim 9, wherein the T_{\max} is a relative deadline of a task having the longest period among tasks.

11. The method of claim 10, wherein the specific time unit is calculated by a formula of $q = \frac{T_{\max}}{2^k}$.

12. The method of claim 11, wherein current time is updated by a formula of $\left[\frac{(\text{current time}) \bmod T_{\max}}{q} \right]$, and the current_time is current time of a system.

13. The method of claim 2 or 3, wherein if the number of tasks is more than the number of a priority level, tasks are grouped into several task sets.

5 14. The method of claim 13, wherein one current time indicator is set to each task set.

15. The method of claim 14, wherein a priority (P_i) of a task having a deadline which is in a range of $2^{m-1}T_{\min} \sim 2^m T_{\min}$ is obtained by a following formula
 10 of $(m-1)x + \left\lceil \frac{d_i \bmod 2^m T_{\min}}{q(m)} \right\rceil$, wherein the $q(m)$ denotes a time unit relevant to the m^{th} time indicator, the x denotes the number of a priority level relevant to each current time indicator, and the d_i denotes a deadline of a corresponding task.

16. The method of claim 15, wherein the number of the current time
 15 indicator is $\left\lceil \frac{2^k}{x} \right\rceil$.

17. The method of claim 16, wherein a value of the m^{th} time indicator, $C(m)$ is updated by a following formula of $\left\lceil \frac{(\text{current time}) \bmod 2^m T_{\min}}{q(m)} \right\rceil$.